



The year end trivia page returns for employees to test NASA knowledge. Story on Page 3.



Employees take advantage of discount prices during the book and computer fairs in Bldg. 3. Photo on Page 4.

Space News Roundup

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No. 48

JSC deputy director to fly shuttle mission

Duffy named acting deputy director of JSC

Brian Duffy will take over the duties of JSC's deputy director while the current deputy, Jim Wetherbee, returns to the Astronaut Office to prepare for the STS-86 mission.

Duffy will serve as acting deputy director. A veteran of three space flights, Duffy was the pilot on STS-45, the first of the ATLAS series of missions to address the atmosphere and its interaction with the Sun. He also was the pilot on STS-57 that included retrieval of the European Retrieval Carrier with the shuttle's

robotic arm. Most recently, Duffy commanded STS-72 that retrieved the Space Flyer Unit, deployed and retrieved the OAST-Flyer.

Tom Akers will replace Duffy as assistant director, technical. He is a veteran of four space flights: STS-41 in 1990, STS-49 in 1992, STS-61 in 1993, and STS-79 in 1996. His experience includes the repair of the Hubble Space Telescope.

In addition, Astronaut Linda Godwin will serve as acting deputy Please see **GODWIN**, Page 4

Wetherbee to lead seventh shuttle/Mir mission

Astronaut Jim Wetherbee will command an international crew on STS-86, the seventh of nine planned missions to dock with the Russian Mir Space Station. STS-86 is targeted for a September 1997 launch.

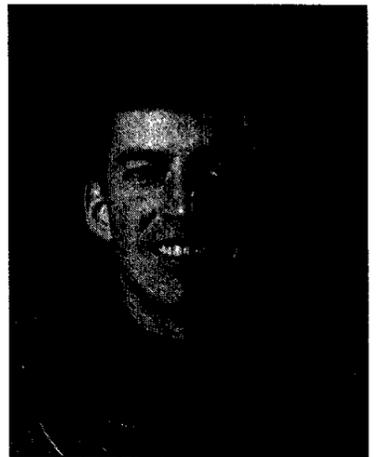
Joining Wetherbee will be Pilot Mike Bloomfield, Mission Specialists Scott Parazynski, Vladimir Titov of the Russian Space Agency and Jean-Loup Chretien of the French Space Agency.

Previously named to the crew is Wendy Lawrence, who will remain

on Mir for a four-month research mission as a member of the Mir 23 and 24 crews. Lawrence will replace Astronaut Mike Foale who will end his stay as part of the Mir 23 crew and return to Earth on *Atlantis*.

STS-86 reunites three members of the STS-63 crew that performed the first rendezvous of an American spacecraft with Mir. Wetherbee, Titov and Foale were members of *Discovery's* mission in which the shuttle approached to within 37 feet

Please see **STS-86**, Page 4



Jim Wetherbee

Atlantis rolls to launch pad for Mir mission

By James Hartsfield

As technicians began removing cargo and analyzing a stuck hatch on *Columbia* following its return from a record-long flight, *Atlantis* moved to the launch pad this week to prepare for a January liftoff on STS-81, the fifth shuttle-Mir docking.

Workers removed the Wake Shield Facility with its full set of space-grown semiconductor materials and the ORFEUS-SPAS satellite with its data on the make-up of stars from *Columbia* on Wednesday.

Earlier in the week, troubleshooting of the jammed outer airlock hatch that prevented two space walks on STS-80 found a loosened and missing screw in the gear hub that apparently caused the problem. The screw was missing from a position in a brake mechanism in the gearbox and is believed to have been caught in the gears, jamming them and preventing opening of the latches on the hatch. Following the analysis, plans are being formulated to ensure similar occurrences do not take place in the future. The hatches on *Atlantis* and *Discovery* will be double-checked as well.

Meanwhile, *Atlantis* rolled out of the Vehicle Assembly Bldg. to Launch Pad 39B on Tuesday, targeted for a launch as early as Jan. 12. On Thursday, the Spacehab module was to be installed in the cargo bay. Also, the three auxiliary power units were test-run after *Atlantis* reached the pad. Upcoming STS-81 milestones include a dress rehearsal countdown with Commander Mike Baker, Pilot Brent Jett and Mission Specialists John Grunsfeld, Marsha Ivins, Peter Wisolf and Jerry Linenger on Monday.



Commander Ken Cockrell, kneeling, receives a hug from his son, Nathaniel, as his wife, Joan, hugs their daughter, Madeline, Sunday at Ellington Field upon Cockrell's return from a record-setting mission. The Cockrells returned to Houston with, from left, Mission Specialist Tom Jones and his wife, Elizabeth, and Mission Specialists Story Musgrave and Tammy Jernigan.

STS-80 sets shuttle record

By Karen Schmidt

With a landing at Kennedy Space Center Saturday, STS-80 enters the record books as the longest shuttle flight in history.

Columbia landed at 5:49 a.m. CST setting a record at 17 days, 15 hours and 53 minutes breaking the previous mark set by STS-78 in July. The crew deployed and retrieved two science satellites—one that studied stars and another that made thin film wafers—during *Columbia's* two weeks aloft.

Commander Ken Cockrell, Pilot Ken

Rominger and Mission Specialists Tammy Jernigan, Tom Jones and Story Musgrave returned to Houston on Sunday in awe of their experience.

"Let me thank you all for your effort in this flight," Cockrell said to fellow workers gathered at Ellington Field. "We are just the privileged small part of the team that gets to go on the flight. You are the ones that do the work and are the biggest contributors to a flight."

Rominger recounted how impressive it was Please see **CREW**, Page 4

Station's first module ready for testing

The first major component of the International Space Station has been completed on schedule and budget.

Russia's Khrunichev Industries, working under contract to NASA's prime contractor, Boeing, has completed assembly of the Functional Cargo Block, or FGB, which will be launched in one year and will provide initial power and propulsion for the space station.

The FGB, a 20-ton pressurized spacecraft, will be launched on a Russian Proton vehicle in November.

"The first piece of space station is on track and will be ready to launch in just 12 months," said Virginia Barnes, FGB program manager. "The people of Khrunichev worked hard to make this happen, and we are all excited to be playing such a crucial role in this new chapter of space exploration."

In May, the FGB will be transported from Moscow to the Baikonur launch complex, where it will undergo final checkout and be mated to a Proton rocket.

"Most of the subsystem hardware has been installed including the propulsion system, the onboard computers, lighting power supply, solar array orientation system, thermal controls, fire detection, and guidance, navigation and control," Barnes said. "The subsystems will now undergo functional testing until the FGB is transported to the launch site."

A week after the FGB launch, an interconnecting node module, built by Boeing in Huntsville, Ala., will be launched from the Kennedy Space Center on a shuttle. Astronauts will link the two modules in space, signaling the beginning of the largest space-based construction project in history. The FGB will provide orbital control, communications and power to the node.

During this period, the FGB will control the motion and define the altitude of the station's orbit. Later in the assembly of the station, as additional modules are added, the FGB will serve as a storage and experimentation facility. In addition, its external fuel tanks will continue to be used throughout the lifetime of the station.

"This is an exciting time for the FGB team," Barnes said. "In the next 12 months we will be preparing to launch and to unite our two countries in building the International Space Station."

Blaha writes home about supply docking

(Editors note: Mir 22 cosmonaut Researcher John Blaha recently sent a letter home from the Russian Mir Space Station as the crew prepares for *Atlantis' arrival in January*)

We started preparing for the arrival of a Progress resupply vehicle two days before the launch. We started loading up the old Progress docked to the Kvant Module and we put all our dirty clothes, trash, equipment nobody wanted, 600 liters of urine and waste into the cargo bay.

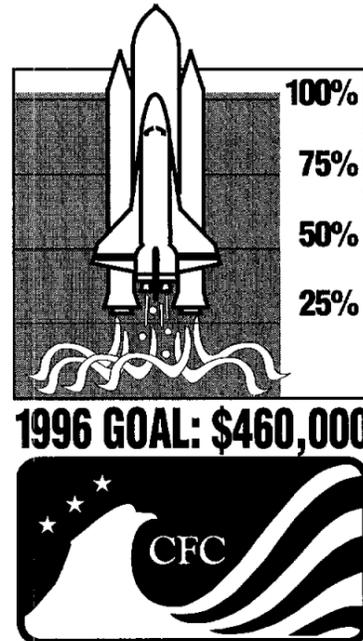
We started sleep shifting two days before launch, because we planned to undock the old Progress at 2 a.m. and dock the new Progress about 26 hours later. We, of course, waited until we knew the new Progress launch was successful and the space ship was going to have a good chance of docking with us before the old one was undocked.

At midnight, Valarie, Sasha and I worked with engineers on the ground to ensure we had a good seal with the hatch leading to the old Progress. When everyone was convinced we had a good seal, the Moscow Control Center sent commands to automatically undock the old Progress. Valarie installed a special control system near the base block station and was ready to fly the Progress manually, if required. He had a TV monitor that displayed Mir as seen from Progress.

About 10 minutes after the Progress undocked, we could visually see it at about 100 meters through a large window in the floor of the base block. It was beautiful to watch this big beautiful machine with solar panels—they looked like airplane wings—pull away and finally disappear.

Twenty-four hours later we were eagerly awaiting the arrival of the new Progress. I was in the Kvant 2 module looking through one of the small windows. I finally saw the Progress at a distance of 30 kilometers. It was a shining star rising towards us at great speed from beneath the horizon. This was an incredible sight. There we were approaching the terminator on planet Earth, and this "beaming" shining star was roaring towards us. Then all of a sudden, the light from the Progress extinguished as we passed into the shade of the Earth. Five seconds later, four lights on the Progress were turned on. I watched the remainder of the rendezvous through a tiny window in the aft end of the Kvant module; right at the point where the docking would

Please see **BLAHA**, Page 4



CFC donations exceeds goals

JSC employees are continuing to contribute to the Combined Federal Campaign with contributions as of Dec. 10, exceeding \$476,339.64.

This is three percent above the goal and represents contributions from 65 percent of JSC employees. Fourteen organizations gave more than 100 percent of their 1996 goals.

There were 174 employees who contributed one-hour's pay and 22 employees who contributed two-hour's pay, and 184 employees contributed more than \$600 per year.

The offices that exceeded their goal were the Office of the Director, Human Resources Office, Office of the Chief Information Officer, Equal Opportunity Programs Office, Legal Office, Flight Crew Operations, Please see **ENGINEERING**, Page 4

JSC

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Store from 10 a.m.-2 p.m. Monday-Thursday and 9 a.m.-3 p.m. Friday. For more information, call x35350 or x30990.

EAA New Year's Dinner Dance: Dec. 31 at the Gilruth. Tickets cost \$27.50. Sales end Dec. 27.

Loving Feelings Concert: Johnny Rivers 8 p.m. Feb. 8 at the Arena Theater. Tickets cost \$34.50.

EAA Spring Break Special to Rome: March 8-15, \$1099 double occupancy. \$200 deposit required. Final payment due Jan. 8.

Space Center Houston: Adult \$8.75; children (4-11) \$6.25, annual membership \$25.95, family membership (up to four) \$59.95.

Movie discounts: General Cinema, \$4.75; AMC Theater, \$4.50; Sony Loew's Theater, \$4.75.

Franklin Planner refills: now taking orders for 1997 calendars.

Stamps: Book of 20, \$6.40.

Entertainment '97 books: Cost is \$25.

Gold C Books: Cost is \$10.

Metro tickets: Passes, books and single tickets available.

JSC

Gilruth Center News

Sign up policy: All classes and athletic activities are first come, first served. Sign up in person at the Gilruth Center and show a NASA badge or yellow EAA dependent badge. Classes tend to fill up two weeks in advance. Payment must be made in full, in exact change or by check, at the time of registration. No registration will be taken by telephone. For more information, call x30304.

EAA badges: Dependents and spouses may apply for photo identification badges from 7:30 a.m.-9 p.m. Monday-Friday; and 8 a.m.-4 p.m. Saturdays. Cost is \$5. Dependents must be between 16 and 23 years old.

Hatha Yoga: A stress relieving, stretching and breathing exercise routine to unite body, mind and spirit. Classes meet from 5:30-6:30 p.m. Thursdays. Cost is \$35 for eight weeks.

Nutrition intervention program: A six-week program to learn more about the role diet and nutrition plays in health, including lectures, private consultations with a dietitian and blood analysis. Program is open to all employees, contractors and spouses. For more information call Tammie Shaw at x32980.

Defensive driving: One-day course is offered once a month. Pre-registration required. Cost is \$25.

Stamp club: Meets at 7 p.m. every second and fourth Monday in Rm. 216.

Weight safety: Required courses for employees wishing to use the weight room will be offered from 8-9:30 p.m. Dec. 17, Jan. 14 and 28. Pre-registration is required. Cost is \$5.

Exercise: Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays. Cost is \$24 for six weeks.

Aikido: Martial arts class meets from 5:15-6:15 p.m. Tuesday and Wednesday. Cost is \$35 per month. New classes begin the first of each month.

Aerobics: Classes meet from 5:15-6:15 p.m. Tuesdays and Thursdays. Cost is \$32 for eight weeks.

Ballroom dancing: Beginner classes meet from 7-8:15 p.m. Thursdays. Advanced classes and classes for beginner-intermediate and intermediate meet from 8:15-9:30 p.m. Cost is \$60 per couple.

Country and Western dancing: Beginner class meets 7-8:30 p.m. Monday. Advance class meets 8:30-10 p.m. Monday. Cost is \$20 per couple.

Fitness program: Health Related Fitness Program includes a medical examination screening and a 12-week individually prescribed exercise program. For more information call Larry Wier at x30301.

JSC

Dates & Data

Today

Cafeteria menu: Special: meat sauce and spaghetti. Total Health: baked potato. Entrees: rainbow trout, liver and onions, beef cannelloni, ham steak, fried cod fish, Reuben sandwich. Soup: seafood gumbo. Vegetables: steamed broccoli, breaded okra, cut corn, black-eyed peas.

Saturday

Children's party: The Employee Activities Association will host a children's Christmas party from 10 a.m.-noon Dec. 14 at the Gilruth Center. Tickets cost \$4 for children and \$1 for adults. For additional information call the Exchange Store at x35350.

Christmas Dance: The Employee Activities Association will host a Christmas Dinner Dance at 7:30 p.m. Dec. 14 at the Gilruth Center. Tickets cost \$25 and include dinner. For additional information call Mavis Ilkenhans at x49644.

Monday

Cafeteria menu: Special: turkey and dressing. Total Health: herb flavored steamed pollock. Entrees: breaded veal cutlet, chicken fajitas, steamed pollock, beef, French dip sandwich. Soup: beef and barley. Vegetables: Brussels sprouts, mixed vegetables, egg plant casserole, winter blend vegetables.

Tuesday

Medical speech: Astronaut Ellen Baker will discuss "Medical Lessons Learned From the Shuttle/Mir Flights" at 8:30 a.m. Dec. 17 at the Shriners Hospital Auditorium, 815 Market Street in Galveston. Transportation is available from JSC. For details call Kay Nute at 244-2019.

Cafeteria menu: Special: pepper steak. Total Health: barbecue chick-

en. Entrees: baked lasagna, pork chop and fried rice, turkey a la king, baked chicken, fried cod fish, French dip sandwich. Soup: black bean and rice. Vegetables: breaded squash, steamed spinach, baby carrots, navy beans.

Wednesday

Spaceland Toastmasters meet: The Spaceland Toastmasters will meet at 7 a.m. Dec. 18 at the House of Prayer Lutheran Church. For additional information call Jeannette Kirinich x45752.

Spaceteam Toastmasters meet: The Spaceteam Toastmasters will meet at 11:30 a.m. Dec. 18 at United Space Alliance in the Civic Room at 600 Gemini. For additional information call Pat Blackwell at 282-4302 or Ben Black 282-4166.

Astronomy seminar: The JSC Astronomy Seminar will meet at noon Dec. 18 in Bldg. 31, Rm. 129. An open discussion meeting is planned. For additional information call Al Jackson at x35037.

Scuba club meets: The Lunarians will meet at 7:30 p.m. Dec. 18 at Redfish Restaurant under the Kemah/Seabrook Bridge, Seabrook Side. For additional information call Fred Toole at x33201.

Cafeteria menu: Special: Mexican dinner. Total Health: steamed pollock. Entrees: broccoli cheese quiche, spare ribs and sauerkraut, steamed fish, Reuben sandwich. Soup: seafood gumbo. Vegetables: Spanish rice, pinto beans, peas, broccoli.

Thursday

Directors meet: The Space Family Education board of Directors will meet at 11:30 a.m. Dec. 19 in Bldg. 45 Rm. 712D. For additional information on this open meeting call Gretchen Thomas at x37664.

Cafeteria menu: Special: hamburger steak with onion gravy. Total Health: baked potato. Entrees: corned beef, cabbage and new potatoes, chicken and dumplings, meat ravioli, French dip sandwich. Soup: broccoli cheese and rice. Vegetables: navy beans, cabbage, cauliflower, green beans.

Friday

Cafeteria menu: Special: tuna noodle casserole. Total Health: broiled chicken breast. Entrees: deviled crabs, broiled pollock, liver and onions, broiled chicken with peach half, Reuben sandwich. Soup: seafood gumbo. Vegetables: Italian green beans, cauliflower au gratin, steamed rice, vegetable sticks.

Dec. 25

Christmas holiday: Most JSC offices will be closed Dec. 25 for the Christmas holiday.

Dec. 26

Radio club meets: The JSC Amateur Radio Club will meet at 7 p.m. Dec. 26 at the Nassau Bay City Hall Bldg. For additional information call Larry Dietrich at x39198.

Dec. 31

New Year's dance: The Employee Activities Association will host a New Year's Dinner Dance at 7:30 p.m. Dec. 14 at the Gilruth Center. Tickets cost \$27.50 and include dinner, party favors and a champagne toast at midnight. Ticket sales end at 3 p.m. Dec. 27. For additional information call Mavis Ilkenhans at x49644.

Jan. 1

New Year's Day: Most JSC offices will be closed for the New Year's holiday.

JSC

Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate fully-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Ads may be run only once. Send ads to Roundup Swap Shop, Code AP2, or deliver them to the deposite box outside Rm. 181 in Bldg. 2. No phone or fax ads accepted.

Property

Lease: Middlebrook, 3-2-2, formal, fenced, fans, good cond, \$900 mo + dep. 281-486-8551.

Sale/Lease: University Trace condo, 2-2.5, DRM, 2 cov'd parking spaces, W/D, new refrig, \$675 mi or \$46.9k. 280-0991.

Sale: Sun Meadow, Friendswood, 3-2-2A, 1470 sq ft, FPL, cov'd patio, new carpet/vinyl/dishwasher, new roof, no MUD, fresh paint and paper, \$74k. x45164 or 482-3428.

Rent/Sale: Clear Lake boat slip w/roof and motorized boat hoist for power boats, \$7.5k. 474-4922.

Sale: Galveston Historic home (1857), twice on the Homes Tour, cover "Houston Home & Gardens" 3 BDR, 2500 sq ft, 12' ceilings, 3 FPL's, \$145k. 409-762-4171.

Rent: Beach house, Crystal Beach, TX, Galveston county, sleeps 10, turn, wkly/wkend. 486-1888.

Rent: Galveston condo, furn, sleeps 6, Seawall Blvd & 61st ST, cable TV, wkend/wkly/dly rates. 486-0788.

Cars & Trucks

'89 Chevy Beretta 2.8, V6, cruise/tilt, great cond, \$3.5k obo. 337-1311.

'91 Toyota Camry, 4 dr, maroon, w/dark gray interior, auto, A/C, AM/FM/cass, ex cond, \$7k. 282-3229 or 286-4547.

'84 Mazda RX7, 131k mi, clean, new AM/FM/cass, new brakes, \$2k. 281-486-8551.

'93 Jeep Cherokee "Sport" 4 dr, 2 WD, collar, auto-OD, A/C, cass, new battery, black/gray, 39k mi, ex cond, \$12,775 obo. Dan, x34640 or 482-7550.

'91 Honda Civic LX, 4 dr, charcoal/gdk gray inter, auto, A/C, fully loaded, 45k mi, 1 owner, \$7k obo. 409-297-8432.

'93 Ford Ranger XLT, 5 spd, A/C, AM/FM/cass, white exter, ex cond, sliding rear window, \$5.9k. 409-925-4244.

'92 Ford Ranger XLT, white, 2.3L, 5 spd, A/C, bed cover, CD player, 67k mi, ex cond, \$5,995. 944-5604.

'84 Corvette, auto, removable top, silver, good cond, \$7.5k. 333-9113.

'81 Mercedes 380 SL, convert, 2 tops, 100k mi, recently painted, baby blue, ex cond, \$16.5k. 334-4666 or 281-344-2205.

'70 Mercury Cougar, restoration project or use for parts, no motor, lots of other extra parts, '69 Cougar parts also, \$500 obo. Robin, x31671 or 482-8934.

'94 Honda Accord LX, ex cond, 27.5k mi, white exterior cloth inter, auto, 4 dr, ABS, dual airbags, P/S, P/W, PL, front and rear spoilers, A/C, AM/FM/cass/CD, \$15k obo. Gus, 33425 or 286-3402.

'89 Toyota 4x4 PU SR5, 5 spd, red exter/gry inter, rollbar, top/lights, off-road tires, alarm, CD, nice, \$7.5k. Jeremy, x35906 or 480-9208.

'88 Plymouth Grand Voyager, all options include, rear air, 99k mi, \$3.9k. x47326 or 486-9673.

'93 Z28 Ltd, loaded, 54k mi, teal blue, \$12.8k. 486-6500.

'84 Corvette, white w/red inter, 84k mi, loaded, auto, leather, new A/C and many other parts, 2nd owner, \$10.9k. Jeff, x41947 or 281-286-6785.

'88 Nissan Stanza, ex cond, 5 spd, A/C, blue, blue/gray cloth inter, 4 dr, 110k mi, 1 owner, \$4.2k obo. Cathy, x48859 or 470-1208.

'81 Toyota Corolla, 1 owner, 72k mi, clean and reliable, cold A/C, \$1,595. 281-532-3055.

'88 Toyota Supra, 5 spd, pwr, ABS, A/C, cass, leather, tint, ex cond, 131k mi, \$6.5k. Isaac, x39324 or 485-8672.

'83 Mercedes, 380 SL, silver, 2 tops, 107k mi, \$13.2k. x35145.

Boats & Planes

Cat w/sails, 18', trailer, \$900. 474-4742.

Searay Bowrider, 21', 260hp Mercuriser V8, I/O, new '96 Alpha I outdrive, 35 Watt/channel AM/FM/cass w/CD changer controls, bikini top, cover, tandem galv trailer, ex cond, \$6.9k obo. Keith, 326-5646.

Cycles

'96 Harley Davidson, "Sportster Hugger" less 1k mi, extra chrome and windshield, garage kept, ex cond, priced to sell quick. 244-1791 or 488-1326.

'86 Honda Shadow 1100, vertical twin, water-cooled, shaft drive, windshield/tank bag, saddle bags, 13k mi, ex shape, \$2.6k obo. x36440 or 326-2664.

'88/89 ATR 250 motor-cross dirt bike, ex cond, w/racing enhancements, \$1.5k obo. 992-1552.

Audio Visual & Computers

486/33MHz, 4Mb, RAM, 120Mb HD, modem, 3.5/5.25 FDs, 28" 14" SVGA monitor, \$500 obo. 996-0152.

Sony CD ROM driver, \$35. 332-3168.

Reading Blaster CD-ROM for Win 3.1 or '95, ages 7-10, \$15. IBM PC XT compatible, 20M/640K, CGA monitor, DOS 2.1, Lotus, WordStar, MYM, etc., several 5.25" disks, \$250 obo; printers, Panasonic KX-P1124 24-pin ultra-mode, \$75 obo; Citizen 200GX dot matrix, \$35 obo; Epson FX dot matrix, \$25 obo. Julie, x31540 or 485-3939.

Bell South telephone w/digital answering sys, ex cond, \$40 obo. Julie, x31540 or 485-3939.

Adobe Photoshop ver 3.0 CD-ROM, new, \$225. Andy, x31596 or 488-5534.

Macintosh 15" color monitor, \$300; Stylewriter 2400 color inkjet printer, ex cond, \$280; Bi-level desk, \$75. x31754 or 486-4273.

Panasonic KX-P1624 24-pin dot matrix printer w/12k internal buffer, ex cond, \$150 obo. 996-0697.

Macintosh Centris 650 CD, sell all or parts, ethernet, 1 Mb C-RAM, 5 - 8 Mb Simms, int CD drive, 230 Mb int HD, 730 Mb int HD, Ergonomic kybd, 1.4 Mb FD, 14.4 ext modem, mouse and basic machine, \$1.1k all or obo; Mac II fx w/136 Mb RAM HD. make offer. Dennis, x39012 or 992-5285.

Technics stereo receiver, 35 watts, \$50 obo. Elvin, x48946 or 996-8723.

Sanyo 40W stereo/tuner w/CD, \$40; Technics CD, \$50; audio mixer, \$100. x47349 or 334-2717.

Canon "Starwriter" word processor, portable w/DOS conversion, ex cond. x34221 or 338-1248.

Celestron C8 Polaris Mount, w/DC motor drives for accurate tracking, \$400 obo. Ken, 244-0280 or 996-0618.

Four 1 Mb 30 pin SIMM computer memory, (70 Ns), \$20. Mark, x30014.

Compaq computers, 1 PC-Server 486/66 12 Mb

RAM, and 240 Mb HD w/kybd, no monitor, \$700 obo. 1 Deskpro 486 4 Mb HD w/many interface cards, kybd, no monitor, \$400 obo. x32920 or 992-9203.

Kodak CD ROM Writer, ex cond, new \$5k sell \$800 obo. x32920 or 992-9203.

Tandy 1k computer w/monitor, printer, S/W, \$85. 291-9225.

Musical Instruments

Electronic piano, Yamaha YPP 50, 76 full keys, speakers and headphone connection, grand piano sound quality, \$1k. 281-532-3055.

Bundy flute, ex cond. Ann, 544-4248.

Pets & Livestock

Longhorn calves, 7 mos, registered, \$600-\$800; steers, \$225. x38170 or 409-925-6272.

Mini-Rex rabbits, \$10 ea. 482-0874.

AKC Black Lab for stud service. Bubba, 409-925-6637.

Free kittens, litter box trained, 6 wks old, 2 blk/white, 1 is gray/black. 281-535-0177.

AKC Reg Rottweiler puppies, ready 1st week of Dec., tails and due claws have been docked, puppies will have shots when weaned, \$300. Daisy, 280-8383 or 409-925-2944.

Household

Sony TV 27" w/matching stand, \$450; king size mattress set, \$150 obo. 996-0152.

Bentwood rocker, \$40; antique school desk \$100 obo. 291-9225.

Kenmore gas dryer, ex cond, \$100. 480-7892.

Southwest style overstuffed couch, huge loveseat, ottoman, scotchguard hvy cotton, beige/white w/desert sand and turquoise designs, new \$2.1k sell \$800 obo. 280-8369.

BRM set, full sz antique green w/dresser, 5 drawer chest, 2 night stands, Italian design, great cond, \$850. Magdi Yassa, 333-4760 or 486-0788.

Mitsubishi 46" Big screen TV, \$1k. x31311 or 326-1809.

Zenith 27" swivel-base console TV, remote, pip, \$300; oak finish coffee, end table w/glass top, \$75. x46120 or 281-337-7528.

Thomasville antique dining table, 108", china cabinet, buffet table, all hvy solid oak, \$3k obo; washer and dryer, working, \$150 both. 482-0874.

Kenmore W/D, \$125 pr or \$75 ea. David, x38122 or 338-8783.

Blue/brown queen sleeper sofa, \$150; 2 aqua recliners, \$75 both or \$225 for all. Susan 286-8048.

Larry Dyke prints, signed and numbered, sell 1 or all. 482-7546.

Formica table, 5', w/fold up legs, \$40. 333-2335.

Waterbed, kg size cherry lacquer frame, great cond, \$200; kg sz solid oak frame, great cond, \$200 obo. 872-4218.

Antique oak barrister's bookcase, 4 units, \$800 obo. 485-7629.

Panasonic Bread Bakery, auto bread maker, SD-BT56P, w/yeast dispenser, 13 hr timer, choice of bread/baking modes, \$140. Jana, x47913.

Twin mattresses/box w/frame, \$50; chest of drawers w/mirror, \$40; blue couch, \$50; entertainment center, \$40. x47349 or 334-2717.

Twin bunkbeds w/mattress, \$75; twin waterbed w/hdbd, dk wood, \$75; kg sz waterbed w/hdbd and etched glass doors, dk wood, \$125; couch, tan

w/peach, green/mauve pin stripes, good cond, \$75. 479-0529.

Couch, loveseat, matching chair, ex cond, \$600. x36925 or 481-0699.

Antique bath tub, white, 5', \$500. Ann, 554-4248.

Pair custom designed hand-carved French loveseats, cushions down filled, \$800 pr; oriental style coffee table w/hvy glass top, ex cond, \$350; desk, 47.5" L x 23.5" W, white w/glass top w/brass handles and trim, \$150; pr antique solid oak end tables, ex cond, \$150 both. 488-5564.

Kenmore gas dryer, ex cond. 480-7882.

Round oak dining room table, 4 chairs; dishwasher. 486-1888.

Wanted

Want double wide baby jogger for expanding family. Pete, x40016.

Want electric guitar w/amp for \$250. 482-0874.

Want Super NES. Steve, x35145.

Want Non-smoking housekeeper 4 days per week, 2 p.m. - 5:30 p.m., salary negotiable. 480-3424.

Want child's desk, good cond for 8yr old. 480-3424.

Want used encyclopedia set for students, prefer World Book or similar, '92 or newer. x39123 or 281-499-8743.

Want Champion juicer. 474-4922.

Want personnel to join VPSI vanpool departing South Braeswood Park and Ride lot at 6:50 a.m. for JSC and offsite locations, 7:30 - 4:30 shift. Susan Gaynor, 282-5447 or Al Rudder, x34997.

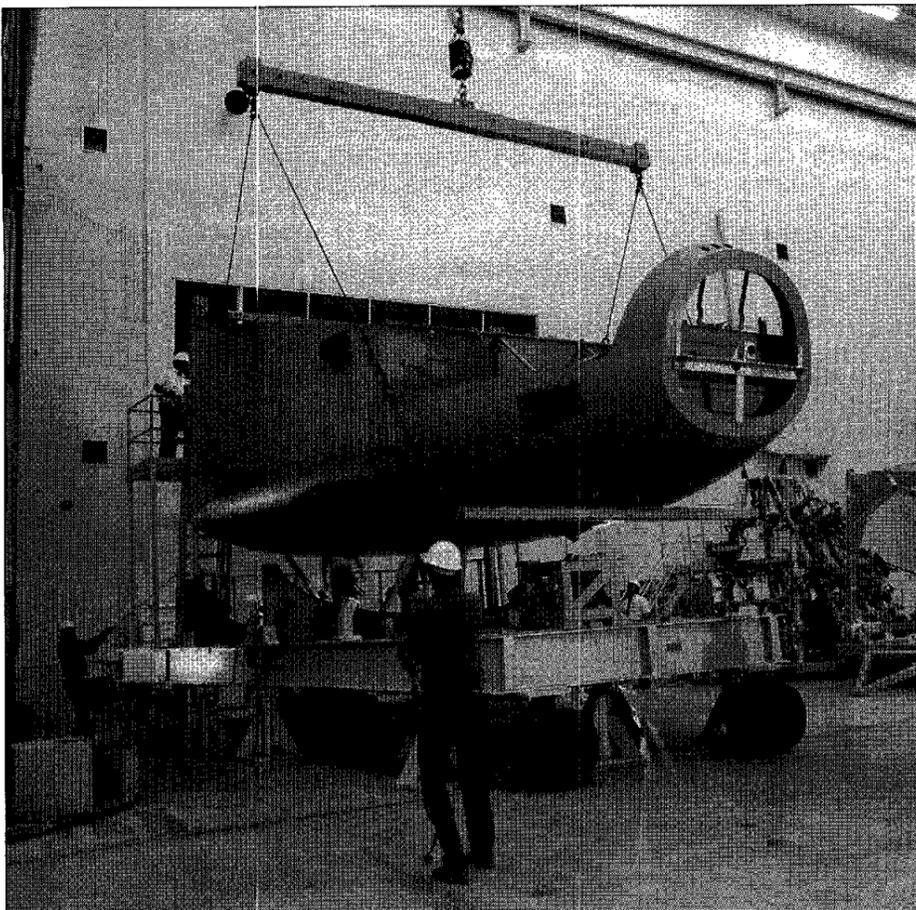
Want Personnel to join VPSI Vanpool departing Meyerland Park and Ride lot at 7:05 a.m. for JSC, shift 8 a.m. - 4:30 p.m. Don Pijms, x35346.

Want roommate, lg 4-2.5-2, Seabrook, separate lot/living area and phone, cable/fax, W/D, \$375. 474-4742.

Want roommate, 3-2-2, Pasadena, smoker ok, \$350 mo. Tamela, x36155 or 998-8859.

Want female roommate to share house in Clear Lake, \$275 mo all bill include. Theresa, 244-5080 or 480-6980.

Roommate to share 2BDR townhouse, Tranquillity Lake, W/D, cov'd parking, \$350 mo + 1/2 util. Eddy, x39570 or 335-1192.



A Trivia Carol

After a year break trivia is back to test your knowledge of NASA lore

1. What is it?

Deck the halls with stacks of copy,
 Trivia arises from disks a-floppy.
 'Tis the season we get wacky,
 The editor has pawned this off on a lackey.
 Don we now our caps of thinking,
 Since brains are dead after 18 days of STS-80 inking.
 We searched reams of books and the 'Net,
 But try as we may, we just had to bet,
 That NASA has a-massed enough facts,
 To make you think you would rather stand 'neath SRB stacks.
 Once again we offer the questions at hand,
 Will you answer or toss the whole thing in the can?
 Fa, la-la-la-la, la-la-la-la!

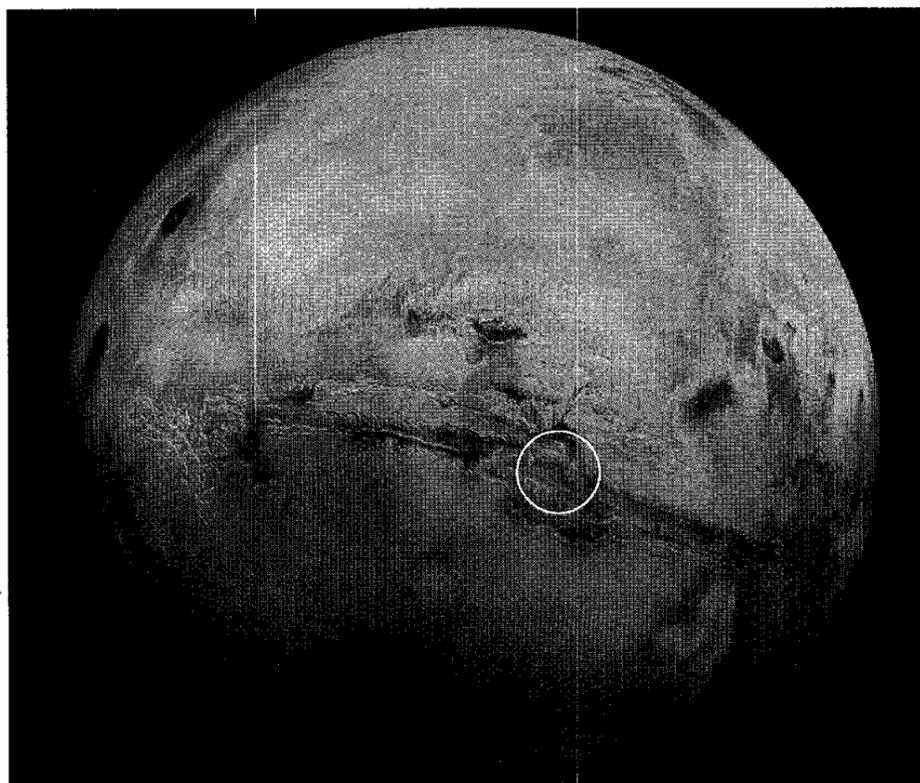
See pictures for questions 1, 62, 63, 64 and 65.

2. Who were the two men space farers involved in the first on orbit international hand shake?
3. What are the names of the two largest volcanoes on Mars and where are they located?
4. How many shuttle missions were completed with a landing at White Sands Test Facility?
5. Where did the Viking Lander 1 touch down?
6. Where did Viking 2 land?
7. What is the distance in miles between Viking 1 and Viking 2 landing sites?
8. Who is Ellington Field named after?

9. When did Ellington Field open?
10. Who holds the record for the most hours spent space walking to date?
11. Whose brown, gold and orange scarf flew on the shuttle?
12. Who is the astronaut with the second highest amount of space walk activity?
13. Who was the first grandfather astronaut to fly in space?
14. What did Alan Shepard leave on the moon during Apollo 12?
15. What is the name of NASA's eight-legged, tethered robot that descended into an active Alaskan crater?
16. As of December 1, 1996, how many active astronauts does NASA have?
17. Which shuttle mission marked the first use of the new Mission Control Center for launch?
18. Astronaut word play: Which astronaut is a friendly spirit?
19. Which flight featured the first married couple to fly on the same mission?
20. How many astronauts were born in foreign countries? Two extra credit points if you can name the astronauts.
21. Name the states that do not have native born astronauts.
22. How many astronauts have earned the Congressional Space Medal of Honor?
23. Who is the only astronaut who was in the Coast Guard?
24. How many space agencies are currently involved in the International Space Station and who are they?
25. How much will the completed International Space Station weigh in one-gravity?

26. How many laboratories will be on the International Space Station?
27. Name the International Space Station laboratories.
28. How many space flights are scheduled to complete the International Space Station?
29. When did George Abbey report to the Johnson Space Center?
30. What did George Abbey do before coming to NASA?
31. How many U.S. women have walked in space (EVA)?
32. How many of the female U.S. space walkers were Girl Scouts?
33. Which U.S. program gave us our first look at Mars?
34. Which U.S. program first landed a probe on Mars?
35. Prior to the Viking missions had any other country attempted to land a probe on Mars?
36. What are the names of the two fuzzy characters that greet Space Center Houston visitors?
37. What is the atmosphere on Pluto?
38. What is the name of Pluto's moon?
39. What was the first Mir Space Station module to be launched, and when was it launched?
40. How many modules does the Mir Space Station have? Bonus points for naming them.
41. What historic monument is the same height as shuttle solid rocket booster?
42. How many tasks are performed to prepare for one average shuttle launch?
43. Who discovered the radiation belts which circle the Earth?

44. Where did the name of the surface rover on the Mars Pathfinder originate?
45. When and where will the Mars Pathfinder land? How far is this from the Viking 1 lander?
46. Why was this site chosen?
47. How is Sojourner powered?
48. What is NASA's vision?
49. How many strategic enterprises are listed in the NASA Strategic Plan?
50. What are NASA's strategic enterprises?
51. Where is the JSC collection agent located?
52. What is in block 49 on a Standard form 50?
53. What phone number can civil servants call to change payroll deductions?
54. According to the JSC Travel Office what must be completed on NASA Form 386 for employees can travel internationally?
55. Who is the curator of the shuttle home page in the Internet?
56. According to JSC Requirements Handbook for Safety, Health and Environmental Protection, employees who work in any office area at JSC or JSC field sites must follow what?
57. What should you do if you discover a fire in Bldg. 1?
58. What is the Internet address for the Space News Roundup?
59. How long is the Mars Pathfinder's approach phase?
60. Who was the 200th American in space?
61. Who is the director of the Jet Propulsion Laboratory? □



62. What does the circled area in this photo signify?



63. What is this?
 64. Who is in it?



65. Who are these men?

JSC begins planning for Go Texan/Rodeo activities

JSC has launched its plans for the second annual JSC Rodeo Liftoff activities, combining efforts with the Houston Livestock Show and Rodeo and the local NASA/Clear Creek/Friendswood Go Texan Association.

"We will be more involved with the two associations this year," said Larry Neu, chairman of the planning committee coordinating the activities. "Like last year, we will have representatives from the Houston Livestock Show and Rodeo Speakers Bureau during lunch on Jan. 30 at the Bldgs. 3 and 11 cafeterias, as well as rodeo clowns and a small animal presentation at the child care center."

These activities preface a lunch time event on Feb. 5 where the Texas Independence Trail Riders will pass through the center, stopping for lunch at Rocket Park. JSC employees are invited to attend the festivities at Rocket Park that include live entertainment and a sneak preview of the Longhorn Project.

"The Longhorn project is a cooperative effort with JSC and the Clear Creek School District, the local Go Texan subcommittee and the Livestock Show and Rodeo officials to further agricultural education at the high school level," Neu said. "All of these events with the Houston Livestock Show and Rodeo

and the local Go Texan committee are not only entertaining to our employees but serve to highlight the great work these groups do with our children to promote education and the numerous scholarships they award to area high school seniors."

Each year, a \$10,000, four-year scholarship is awarded to a graduating senior at each of our four local high schools—Clear Lake, Clear Creek, Clear Brook and Friendswood.

"You don't have to like cows and horses to appreciate the Houston Livestock Show and Rodeo, you only have to like kids," said Gene Hollier, one of the Houston Livestock Show

and Rodeo Speakers Bureau volunteers.

JSC employees who ride horses will once again stage a "circle" trail ride in conjunction with the Texas Independence Trail riders. The JSC horsemen and women will meet the Independence trail ride at the main gate on Feb. 5 and escort them around the center. After the Independence Trail Riders exit the center, the JSC circle riders will stop by the child care center. Employees interested in joining in the circle trail ride should contact Rose Gardner-DeLapp at x30331.

Employees who would like to join the Rodeo Liftoff planning committee should contact Neu at x32865.

Godwin gets new deputy job

(Continued from Page 1)

director of Flight Crew Operations. Godwin replaces Robert "Hoot" Gibson who left NASA last month to pursue private business interests.

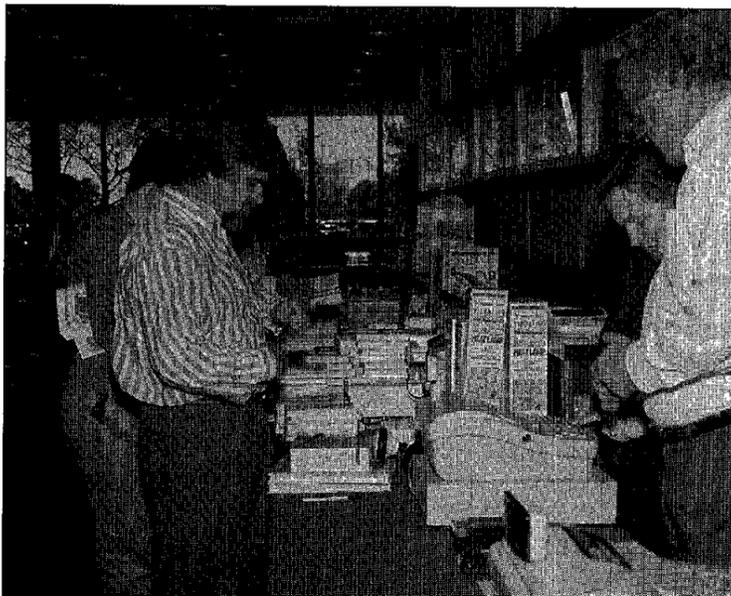
Goodwin is a three-time shuttle veteran. She was a mission specialist on STS-37, STS-59 and STS-76. Godwin was the first astronaut to perform a space walk while docked to an orbiting station. Goodwin and Rich Clifford mounted experiment packages on the Mir docking module to detect contamination.

STS-86 to feature Mir space walk

(Continued from Page 1)

of Mir in a dress rehearsal for the first shuttle/Mir docking.

Highlights of the nine-day mission include five days of docked operations between *Atlantis* and Mir and the exchange of crew members Foale and Lawrence to continue a permanent American presence on the Russia complex. A space walk is scheduled to retrieve the four Mir Environmental Effects Payloads that were attached to Mir's docking module by Linda Godwin and Rich Clifford during STS-76 to characterize the environment surrounding Mir. *Atlantis* will carry the Spacehab double module to support the transfer of logistics and supplies to Mir and the return of experiment hardware and specimens to Earth.



JSC employees take advantage of special prices on books during the "Reading is Fun" Book Fair held this week in the Bldg. 3 cafeteria.

Engineering tops JSC CFC contributions

(Continued from Page 1)

Mission Operations, Engineering Directorate, Technology Transfer and Commercialization Office, Office of Chief Financial Officer, Space Shuttle Program Office, Space Operations Office, EVA Project Office and Phase 1 Program Office.

A total of 2,150 out of 3,297 employees participated. The Office of the Director, Office of the Chief Information Officer, Equal Opportunity Programs Office, Legal Office, Technology Transfer and Com-

mmercialization Office, Space Operations Management Office, EVA Project Office and the Phase 1 Program Office all reported 100 percent or more participation. Additionally, \$1,025 in contributions were received from six JSC retirees. Engineering contributed the largest dollar amount, with \$131,488.96 or 108 percent of its goal and Mission Operations contributed the next largest, \$78,897.86 or 107 percent.

Donations are still being accepted. For information call x39168.

Crew recalls team work during mission

(Continued from Page 1)

see the trailing satellites at sun rise.

"This was the first time I had been able to do a rendezvous," Rominger said. "It was just incredible having two satellites out there at the same time. In the morning when the sun would rise, they were just tremendously bright stars, trailing along behind us. It was just an incredible experience to see these bright stars."

Jernigan reflected on how a stuck hatch will give the space program an advantage in future flights.

"This flight offered all of us a bit of everything the space program has to offer," Jernigan said. "It offered the excitement of two deploys, rendezvous and retrievals and also the frustration of a hatch that wouldn't open and EVAs left undone. I bet it is a long, long time before we ever have another hatch problem. NASA will make the most of the lesson it has learned."

Jones said that he would never forget the team work during the mission.

"There were a lot of bright minds that spent many sleepless nights and hours over the holiday weekend working on strategies for opening up our balky hatch," Jones said. "It just goes to show the kind of team we have here at NASA. Some of the strategies for getting the hatch open had we had to go outside and do a repair job on the shuttle were very clever and inventive."

Musgrave recounted that the long mission gave him a sense of what space is all about.

"This mission was long enough so you had some time to stop and think about what space was about," Musgrave said. "Time to have an experience of space to explore the heavens, to explore the Earth and think about what that is all about and get a feel for space."

Blaha recalls Progress docking

(Continued from Page 1)

occur. Again, Valerie was monitoring the event with his backup control system in the base block of Mir.

The docking felt quite firm. Five times stronger than I remembered the shuttle docking with Mir felt over two months ago. We verified we had a good seal before opening the hatch at about 5:30 a.m. We were supposed to go to sleep at 6 a.m. Of course, we stayed up a few extra minutes as we searched for our crew packages. Once we found

our packages, it was like Christmas and a birthday all rolled together when you were 5 years old. We really had a lot of fun reading mail, laughing, opening presents, eating fresh tomatoes, cheese, etc. It was an experience I will always remember.

The Progress brought us a lot of food, fresh water, fuel for the reaction control jets, oxygen, spare parts needed to repair systems, equipment for a space walk, science equipment, towels and clothes.

Answers to the annual NASA Trivia Challenge

(Continued from Page 3)

- The forward fuselage of *Endeavour* during manufacturing.
- Cosmonaut Aleksey Leonov and Astronaut Thomas Stafford shook hands in orbit when the American Apollo spacecraft docked the Russian Soyuz spacecraft during the Apollo-Soyuz Test Project on July 17, 1975.
- The two largest volcanoes on Mars are Olympus Mons at latitude 18 north, longitude 133 and Alba Patera 1,100 miles to the northeast.
- One, STS-3 was diverted from Edwards Air Force Base due to weather.
- The Viking Lander 1 touch down at Cyruse Planitia, 22.27 degrees north latitude and 47.97 degrees longitude.
- The Viking Lander 2 touch down at Utopia Planitia, 47.67 degrees north latitude and 225.74 degrees longitude.
- 4,014 miles.
- Pioneer aviator and Army second Lieutenant Eric Ellington, killed on a training flight near San Diego, Calif.
- November 27, 1917.
- Tom Akers who has 29 hours and 40 minutes of space walking experience during STS-49 and STS-61.
- Amelia Earhart's scarf was flown by Commander Loren Shriver on STS-31, April 24, 1990.
- Eugene Cernan who flew on Gemini 9 and Apollo 17 has 24 hours and 14 minutes.
- Richard Truly.
- Two golf balls.
- Dante.
- 99.
- STS-77 in May of 1996.

- John Casper.
- Mark Lee and Jan Davis on STS-47 in September of 1992.
- Twenty five. Andrew Thomas and Philip Chapman, Australia; Marc Garneau, Chris Hadfield and David Williams in Canada; Shannon Lucid in China; Franklin Chang-Diaz Costa Rica; Mike Foale, England; Jean-Francois Clervoy, Michel Tognini and Jean-Loup Chretien, France; William Anders, Hong-Kong; Kalpana Chawla, India; Maurizio Cheli and Michael Collins Italy; Koichi Wakata and Takao Doi Japan; James Newman Pacific Islands; Carlos Noriega, Peru; Sergei Krikalev and Vladimir Titov Russia; Michael Lopez-Alegria Spain; Claude Nicollier, Switzerland; John Llewellyn, Wales and Stephen Thorne, West Germany.
- Alaska, Idaho, Maine, Montana, Nebraska, Nevada and Wyoming.
- Ten.
- Bruce Melnick.
- Six. Canada, ESA, Italy, Japan, Russia and the U.S.
- 470 tons or 940 thousand pounds.
- Seven.
- The U.S. laboratory, the U.S. built Centrifuge Accommodation Module, European Space Agency's Columbus Orbital Facility, the Japanese Experiment Module and three Russian Research modules.
72. 27 shuttle flights, 44 Russian flights and 1 ESA flight.
- November, 1964.
- He logged over 4,500 hours in jet, reciprocating, and rotary wing aircraft for the U.S. Air Force.
- Three. Linda Godwin, Kathy Sullivan, Kathy Thornton.

- All three.
- The Mariner program performed several flybys and fly-arounds of the Red Planet from 1964 to 1971.
- The Viking Missions landed on Mars in July and September of 1976.
- Three Soviet spacecraft had made the attempt. Mars-2 and Mars-6 apparently crashed while attempting to land, and Mars-3 soft landed safely but stopped operating after less than 20 seconds on the surface.
- "Cosmos" the Moon and "Gazer" the star.
- Methane.
- Charon.
- The Mir Base Block was launched in 1986.
- Five. Spectra, Kvant 2, Kristall, Priroda and the Mir Base Block.
- The Statue of Liberty at 151 feet.
- Ten thousand tasks over a 65 day period.
- Professor James Van Allen of the University of Iowa was the originator of experiments launched on the Explorer 1 satellite which discovered these belts of radiation that now bear his name.
- "Sojourner" which means traveler was named after Sojourner Truth, an African American reformist, who lived during the Civil War and selected from a group of essays submitted by a students.
- July 4, 1997 in Area Vallis, 19.5 degrees north latitude, 32.8 degrees west longitude about 525 miles southeast of the Viking 1.
- Offers maximum sunshine for Sojourner's solar power and offers a variety of rocks.
- By a 1.9 square foot solar array that

- will provide several hours per day of power. It also has a battery backup.
- NASA's Strategic Plan states that "NASA is an investment in America's future. As explorers, pioneers and innovators, we boldly expand frontiers in air and space to inspire and serve America and to benefit the quality of life on Earth."
- Five.
- Mission to Planet Earth, Aeronautics, Human Exploration and Development of Space, Space Science and Space Technology.
- Bldg. T-585 Rm. 122.
- Approval date.
- The Employee Express number to call from home is 1-800-571-3453, from work call 912-757-3169.
- Employees must have a medical officer sign in Block 19.
- Terry McDonald.
- Chapter 202. Office safety.
- Get out and call x33333.
- <http://www.jsc.nasa.gov/pao/roundup/weekly/>
- The approach phase begins 45 days before entry and ends 12 hours prior to entry.
- Steven Smith on STS-68 on Sept. 30, 1994.
- E. C. Stone.
- The landing site for the Mars Pathfinder.
- Skylab trainer.
- First manned Skylab Commander Charles Conrad.
- The five remaining Mercury astronauts. From left are, Scott Carpenter, Gordon Cooper, John Glenn, Walter Schirra and Alan Shepard.